Supreme Court, U.S.
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IN THE

Supreme Court of the United States

OCTOBER TERM, 1997

LEONARD R. KAHN,

Petitioner,

v.

GENERAL MOTORS CORPORATION,

Respondent.

On Petition for Writ of Certiorari to the United States Court of Appeals for the Federal Circuit

PETITION FOR A WRIT OF CERTIORARI

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63 pp

QUESTIONS PRESENTED

This appeal raises issues that involve the very viability of the United States Patent System, i.e., the nullification of the Doctrine of Equivalents, and also the negation of an important procedural safeguard in any technology case; the use of Demonstrative Evidence as "real" substantive evidence to decide a controlling issue. More specifically, the legal issues are:

1) In implementing the Supreme Court's unanimous 1997 Hilton Davis decision regarding the all-important Doctrine of Equivalents, did the Federal Circuit err when it dramatically altered the Doctrine by requiring counterpart equivalence, which equates to identity of structure requiring the patent itself to disclose the accused structure, and thereby, as a practical matter, nullify the Doctrine so as to deny patentees full and fair enforcement of their patents?

2) Did the Federal Circuit commit reversible error when it gave deference and full weight to a trial court's finding of a controlling fact which the trial court's opinion was solely based on, and where the demonstration was aimed at the trial court's personal "seeing is believing" response, and when said demonstration violates basic physical and mathematical concepts accepted worldwide, and where the demonstrative exhibit was not noticed as an evidentiary exhibit under the pre-trial order, and where the witness that performed the demonstration was presented as a "fact" witness and not offered as an expert who would have properly presented "opinion" testimony under Federal Rule of Evidence 702 and Daubert?

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CITATIONS OF OPINIONS BELOW

The opinion and order of the United States District Court for the Southern District of New York is unreported, and is reprinted as Appendix B.

The Court of Appeals of the Federal Circuit is reported in Kahn v. General Motors Corp., (BNA) 45 USPQ2d 1608 and is reprinted as Appendix A.

JURISDICTION

The Federal Circuit affirmed-in-part and reversed-in-part the Southern District of New York Court's judgment on February 3, 1998. On March 26, 1998 a petition for rehearing was denied and the suggestion for in banc rehearing was declined. On June 12, 1998 this Court extended the time to file a petition for writ of certiorari to and including July 23, 1998. (As per application A-941)

The jurisdiction of this Court is invoked under 28 U.S.C. 1254(1).

Constitutional Provisions, Statutes and Local Court Rules Involved in the Case

United States Constitution

Art. 1, Sec. 8. The Congress shall have power...To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to Their respective Writings and Discoveries.

United States Statute

28 USC 1254. Courts of Appeals; Certiorari; Certified Questions

Cases in the courts of appeals may be reviewed by the Supreme Court by the following methods:

1) By writ of certiorari granted upon the petition of any party to any civil or criminal case, before or after rendition of judgment or decree;...

Federal Rules

Rule of Evidence 702. Testimony by Experts

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Local Rules

United States District Court Judge Harold Baer, Jr. Rules, incorporate a sample "joint pre-trial order." The 15th Clause of the Order reads as follows:

PRECLUSION: Witnesses or exhibits not listed in accordance with the terms of this Joint Pretrial Order, or supplemental pretrial order (if permission to file one is obtained) filed at least thirty (30) days in advance of trial unless otherwise shortened by the court, shall be precluded at trial except for those to be used solely for impeachment or rebuttal -- n.b., this does not relieve parties from producing during discovery those documents properly requested that may be used at trial for impeachment.

Other Publications:

PATENT 4,018,994

Claim 53. In a compatible AM stereo receiver of the type for receiving a carrier wave amplitude modulated with a stereo sum (L+R) signal component and phase modulated with a stereo difference (L-R) signal component, and utilizing detection means for deriving the L+R audio signal and demodulating means for deriving the L-R audio signal and means for combining the L+R and L-R signals to isolate the L and R signal outputs, the improvement comprising:

means for deriving a distortion cancellation component from the stereo sum signal component, and

means for combining said distortion cancellation component with a signal including the stereo difference signal component information to substantially reduce distortion of the stereo difference signal component.

Claim 54. A receiver according to Claim 53, wherein said means for deriving the distortion cancellation component comprises means separating a portion of the L+R audio signal, and said means for combining the separated distortion cancellation component with said signal including the stereo difference signal component information comprises means inversely amplitude modulating the modulated carrier wave with such L+R audio signal portion prior to demodulation thereof.

Practicing Law Institute Brochure

Patent Litigation 1998 Announcement Included in part:

"The Judicial Attack On Infringement"

The Judiciary's Attack on Infringement:

"Although the Federal circuit has given to patentees with the one hand on validity, it is taking away with the other hand on infringement. Narrow construction and application of "means plus function" elements, limitation of claims in light of the "written description" requirement, a presumption favoring prosecution history estoppel, and reliance on an improvement patent obtained by the defendant to deny equivalents, are markers along the path of judicial attack. How can patent litigators exploit or counter this trend to cut back patent protection?"

STATEMENT OF THE CASE

This patent infringement suit was filed in the Southern District of New York on April 29, 1988. The Plaintiff Appellant alleged that Defendant General Motors' AM Stereo radio receivers infringed Claims 53 and 54 of U.S. Patent 4,018,994 (the '994 Patent). The case was stayed as per a June 10, 1988 show cause order favoring a declaratory judgment suit filed subsequent to the filing of this suit, in the Federal District Court in Chicago by Motorola, General Motors' indemnitor, and the firm that has taken control of the defense of this action. The Chicago suit named Kahn and Hazeltine (Kahn's licensing agent) and was dismissed when the Court declined to hear the suit stating that it may serve to harass a pro se party.

Prior to the dismissal of the Chicago suit, Kahn appealed the New York Court's stay order and the Federal Circuit, in 1989 No. 89-1325, 889 F.2d 1078, 12 USPQ 2d 1997 (Fed. Cir. 1989), unanimously found for Kahn and remanded the case to the New York Trial Court for prompt action.

In 1994 a trial was held re Kahn's title of the '994 Patent and on December 27, 1994 Judge Baer, (the 7th trial court judge assigned to this case) found that Kahn held title to the '994 Patent. However, the trial court certified questions re the title issue and the CAFC unanimously found that Kahn held legal and equitable title to the '994 Patent. Appeal No. 95-1499, 77 F.3d 457 and 38 USPQ 2d 1063 (Fed. Cir. 1996)

Finally, on April 1, 2, 3, 8, 9, 10 & 12 of 1996 a bench trial covering the issues of infringement, validity and damages was held by Judge Baer having previously made a ruling denying Kahn's request for a jury trial. On January 27, 1997 Judge Baer issued a Decision and Order finding the '994 Patent invalid under 35 USC 103 and not infringed by General Motors. Appellant filed a timely appeal which the CAFC docketed on March 21, 1997.

The Federal Circuit affirmed-in-part and reversed-in-part the Southern District of New York Court's judgment on February 3, 1998. On March 26, 1998 a petition for rehearing was denied and the suggestion for in banc rehearing was declined. On June 12, 1998 this Court extended the time to file a petition for writ of certiorari to and including July 23, 1998. (Appendix D)

Technical Background

As shown below, this appeal is not based on complex technical issues, but rather the Federal Circuit's new interpretation of the Doctrine of Equivalents and also procedural steps that should be strictly applied to all high technology cases. There is one very simple technical issue to consider, but it does not require an understanding of the arcane technology described in the '994 Patent.

Thus, only for completeness is the following condensed, but complex, statement provided.

The Trial Court, Opinion Page 2, provided the following succinct background statement abstracted from the '994 Patent:

The '994 patent, entitled "Compatible AM Stereophonic Receivers," issued to Kahn on April 19, 1977 from an application filed on May 2, 1975. The claimed invention addresses the problem of optimizing the quality of the output signal from a compatible AM stereo receiver. The term compatible refers to the radio transmission and means that the signal can be received by both monophonic and stereophonic receivers. A compatible AM Stereo receiver is capable of receiving such radio transmissions.

The Kahn receiver is designed to receive transmissions where the two stereo audio signals, the left ("L") and right ("R") signals, are transmitted by an independent single sideband system. In such a system, the monophonic information is encoded by envelope or amplitude modulation of the carrier wave by the stereo sum ("L+R") component. The stereophonic information is encoded by phase modulation of the carrier wave by the stereo difference ("L-R") component. The claimed inventive concept is that Kahn derives a distortion cancellation component from the L+R signal and uses it to inversely amplitude modulate the L-R signal and thereby substantially reduce the distortion of the L-R signal caused by incorrect amplitude modulation of the carrier wave.

INTRODUCTION, SUMMARY OF ARGUMENT

Only two questions are raised in this appeal; the first concerns an interpretation of this Court's 1997 Hilton Davis[1] and the second procedural question deals with the use of Demonstrative Evidence as substantive evidence.

The first question concerns an issue which is apparently paralyzing the Federal Circuit, the Doctrine of Equivalents, wherein, except for a few chemical cases, there is a shut-down of the CAFC's findings of patent infringement.

A number of cases will be cited that clearly show the struggle at the Federal Circuit wherein those that believe in the Doctrine are being overpowered so as to suspend the patent clause of the Constitution.

In the instant affirmation of non-infringement, the Panel broke new ground by requiring strict structural component-by-component equivalence. Examples will be provided as to how this ruling will completely halt the enforcement of patents. This is especially true of patents disclosing new electronics, computers and other communications age systems as there is not a single sitting judge on the Federal Circuit with an electrical engineering degree.

The second question this appeal poses is whether the Trial Court's use of demonstrative evidence to decide a case is proper, and whether a clear violation of the Preclusion paragraph of the Pre-trial Order combine to result in

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[1]Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 117 S. Ct. 1040, 41 USPQ2d 1865 (1997)

reversible error.

A related issue is whether it was proper to turn a courtroom into a laboratory where a brilliant jurist, but not an engineer, was asked to decide technological issues. Especially when the laboratory was used to perform "magic shows" cleverly designed to mislead. (As pointed out below, the plaintiff has filed a motion to set aside the judgment on the basis of intrinsic and extrinsic fraud upon the trial court.)

ARGUMENT WHY CERTIORARI SHOULD BE GRANTED

The concise answer is; if the CAFC's recent extreme readings of Hilton Davis, including the instant one, are permitted to remain in effect, the United States Patent System is dead.

Clearly, the Petitioner must, and will, fully support this statement later in this brief. But first a brief word about the industry the '994 Patent helped create.

It is assumed that almost all petitioners to this Court fervently believe that their cases are of great importance. As to the instant case, the '994 invention solved the 30 year old riddle that kept AM stereo off the air and relegated it to a laboratory curiosity. Lack of stereo music denied AM full competition with FM, and thus, severely weakened AM radio generally. AM radio is the most spectrum efficient form of broadcasting, serving tens of millions of listeners, even listeners located in the sparsest populated areas. A total band of less than 1 million Hertz serves some 5,000 stations, 5% of the bandwidth of the FM band. A single TV station uses five times the spectrum as does the entire AM band.

Thus, AM radio is well worth some consideration in this last piece of litigation in the so called AM Stereo wars. (Please see October 1996 Term Petition 96-1272 re the war.)

But not only has the broadcast industry been damaged by this decision, so are individuals and firms that base their research investments on patent protection. If they believe that the Courts are unable to cope with patents, prudent investors in complex research programs will be unwilling to continue funding such developments.[2] Thus, the basic issues presented here cannot be of greater importance.

Restating the legal points of this petition for certiorari in positive language:

a) The Doctrine of Equivalents only requires that the alleged infringement be proven on an individual element or limitation basis. There is no requirement, under Hilton Davis, for a patentee to prove that a claim's structures are identical to the infringer's device, and such a requirement negates the Doctrine.

b) Demonstrative evidence "magic shows" have no place in the courtroom as there is a natural inclination to be convinced by "seeing is believing" evidence. This is especially true of high technology cases where the triers of facts cannot be expected to sufficiently master technology in a few weeks of exposure to partisan expert testimony so as

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[2]Trade secret protection is not a viable alternative for mass produced products. The ability to reverse engineer such products would scare away prudent investors. Furthermore, trade secret protection does not encourage general growth of technology as was envisaged by the Founding Fathers.

to catch tricks carefully orchestrated in technical demonstrations. As Chief Justice Rehnquist pointed out in his Daubert dissent re a trial court's duty as a Rule 702 gatekeeper, judges should not be required to become amateur scientists.

Just last Friday the advanced BNA sheets published the latest proof that the Federal Circuit is being torn apart over radical readings of Hilton Davis. The decision in Litton Systems, Inc. v. Honeywell, Inc., 47 USPQ2d 1106, denying rehearing, proves, by itself, how that court is paralyzed over all questions of infringement. Newly seated Judge Gajarsa, who wrote his first opinion for the subject case, berated colleagues for basing their views on footnotes (at 1110) and one judge after another claimed that they do not exactly know what the Supreme Court had in mind in Hilton Davis.(at 1107) Judge Plager put the import of the Doctrine of Equivalents in proper perspective:

> There is perhaps no question more important to the health of patents than the scope and application of the judicially-created doctrine of equivalents. It permeates the entire fabric of patent law, and appears in virtually every case involving patent enforcement. A candid appraisal of our jurisprudence in this area suggest there is room for improvement.(at 1107)

If one compares these extreme reactions with that of scholars who expressed their relief that the Supreme Court had come out with a clear reaffirmation of the Doctrine, it is difficult to understand why almost every panel has a majority of judges who interpret Hilton Davis as a death knell of the Doctrine. Hilton Davis was even understandable to inventors all over the country who sighed with a collective sensation of relief, assured that the Patent System was still alive and well.

Clearly, Litton, and a host of other cases,[3] [4] [5] including the instant case, fully support the initial statement of this Reasons for Granting Petition Section:

> **if the CAFC's recent extreme readings of Hilton Davis, including the instant one, are permitted to remain in effect, the United States Patent System is dead.**

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[3]In another very recent (3/24/98) CAFC decision, Dawn Equipment Co. v. Kentucky Farms Inc., 46 USPQ2d 1109, all three panel judges issued "additional views" explaining their view of the Doctrine of Equivalents. And only one judge clearly supported the Doctrine! This situation persists in the face of Hilton Davis clearly validating the Doctrine and thus preventing industrial research being brought to a screeching halt.

[4]In another recent case: Chiuminatta Concrete Concepts v. Cardinal Industries, 46 USPQ2d 1752 (CAFC 1998), the Federal Circuit reversed the finding of infringement on the basis that the alleged equivalent element structure predated the invention and it should have been disclosed in the patent. This attack on the Doctrine not only appears to ignore Hilton Davis, but will, if not reversed, put an immense burden on patent applicants and bury the PTO in prolix. And the new patents will still be useless.

[5]The announcement for the upcoming 1998 PLI Patent Litigation Conference headlines "The Judicial Attack on Infringement" and describes separate lectures outlining a litany of new unprecedented limitations placed upon patentees that have severely impacted on patent protection.

POINT 1

HILTON DAVIS DOES NOT REQUIRE STRUCTURAL EQUALITY BUT MERE EQUIVALENCE, AS RECOGNIZED BY THOSE SKILLED IN THE ART, EVEN THOUGH THE STRUCTURE SEEMS DISSIMILAR TO LAYMEN UNFAMILIAR WITH THE ART

Under Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 117 S. Ct. at 1049, 41 USPQ2d at 1871, the Doctrine of Equivalents is applied to each individual element of a claim, not to the invention as a whole. But in the instant case, the CAFC required strict component-by-component counterpart equivalence. Such a requirement reverses a century of Supreme Court decisions and issues copyists licenses to steal. Quoting from the Opinion:

> Despite Kahn's claim that the feedback system used in the GM circuit is the feedforward [sic "feedback"] equivalent of the structure disclosed in the '994 patent, there are significant differences between the two structures. The structure of the '994 patent includes a frequency doubler, which has no counterpart equivalent in the GM receiver that performs a similar function. Likewise, the summer described in the '994 specification has no counterpart in the GM circuit. It is clear that the GM feedback circuit employing a comparator is not an equivalent to the amplifier, frequency doubler, summer combination disclosed in the '994 specification. These two circuits utilize very different structures, for different purposes. As a result, we hold that there is

> no counterpart equivalent structure in the accused device that meets the means-plus-function limitation of Claim 53, which requires "means for deriving a distortion cancellation component from the stereo sum signal component." Opinion page 9

The Hornbook example used to demonstrate the logic of the doctrine of equivalents is the element of "means for joining two pieces of wood." Such joining would obviously (to one skilled in the mechanical arts) include; gluing, nailing, screwing, using tongue and groove joints and pegs. All of these means are separate and distinct, but clearly "equivalent."

In his rehearing request, the Appellant used another example to illustrate the fallacy of requiring strict counterpart equivalence. The example offered was a feedback circuit to be used for cutting wood following a sample reference curve that required intense illumination so that a miniature video camera could "see" how accurate the cut was being made and feedback an error signal that would continually reposition the wood being cut to improve the accuracy of the cut.

Thus, if the hypothetical patent application was filed in the 1970's, the specification might describe the use of a common incandescent miniature spotlight bulb. An element of a suitable claim might be:

> "means for illuminating the work piece at the location where the cut is to be made."

Clearly, a designer following the teaching of such a claim would know, say 15 years later, that she would have a wide range of options available, incandescent lights, fluorescent lights, vapor lamps, etc.

(If the saw is located near a window, **sunlight** might even be used as the source of illumination.)

In any case, a copyist should not be permitted to make a mockery of the patent in the 1990's by using, say, new high intensity light emitting diodes (LED) as the illumination means, because its structure is not the same as an incandescent bulb. Or even more incredible is a counterpart comparison of sunlight and the disclosed miniature spotlight. It takes little imagination to realize how a copyist's attorney would make use of the comparison of the 1 inch spacing of the spotlight and the 93,000,000 mile spacing of the sun from the saw. This same equivalence problem was experienced when solid state amplifier means replaced vacuum tube amplifiers, even though they functioned in radically different ways.

The answer to the problem is obvious. **Each evaluation of Equivalence must consider what one skilled in the art, at the time of the infringement, would consider equivalent, element by element, even though lay persons, unfamiliar with the technology, cannot recognize the structural equivalence.** Unless this latest distortion of Hilton Davis is reversed, the judicial system will have, with no legislative support, legalized "fraud on patents" and destroyed the two hundred year old patent system.

Finally, the Panel in adopting its strict structural equivalence requirement, rewriting Hilton Davis, ignored the main question discussed at the Oral Argument; that the trial court opinion relied solely on, in its non-infringement decision, GM's deceptive and clearly erroneous DX266

demonstration amounting to technological gibberish.[6] Thus, the important issue of basing decisions on demonstrative evidence, is also key to this case. As pointed out below, this decision places the CAFC in conflict with the 1996 7th Circuit Finley case, which was cited to the CAFC Panel during the Oral Argument.

WHY THE DOCTRINE OF EQUIVALENTS ONLY WORKS FOR CHEMICAL CASES

There are two well trained chemical engineers on the Federal Circuit. **There is not a single electrical engineer on the Court, even though this is the age of electronics, computers, and communications.**

It is no accident that Hilton Davis and other chemical cases end up applying the Doctrine of Equivalents in a more rational manner. It is obvious that armed with an education in Chemistry a judge, continuously being updated in technology by studying new patents, is in a position to act as an inside impartial expert on such cases. However, absent a single judge with the tools to even understand the word "sideband" or "phase modulation," there is no way any Judge on the Federal Circuit can obtain the continuous education

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[6]As per Application A-941, the Petitioner was granted a 30 day extension based on his allegation that the crucial DX266 Demonstration supported intrinsic and extrinsic fraud. Those charges are the basis of a Set Aside Judgment Motion now before the Honorable Judge H. Baer, U.S. District Court for the Southern District Court of New York. The motion is based upon affidavits of eminent experts; Mr. J. Minter and Prof. William R. Bennett, the holder of the Sawyer Engineering Chair at Yale University.

the two Judge/Chemists receive. Even the few clerks who are EEs are on the Court for short periods and they are there for legal training, not to practice engineering.

Thus, there is a severe problem in courts having to evaluate complex technology issues as Justice Breyer and Chief Justice Rehnquist have pointed out. Unfortunately, the electronic, computer and communication industries cannot wait for long term solutions not even pending in the Congress. **And there are no degreed physicists or mechanical engineers who are skilled in those crucial arts on the CAFC.**

Fortunately, this Court can restore the patent system to all industries by:

a) reversing one or more of non-chemical cases that clearly do not comply with the teachings of Hilton Davis, and by

b) strictly enforcing all procedural safeguards that protect the trial courts from overzealous advocates especially in high technology cases, such as many patent cases.

Clearly, both a) and b) apply to the instant petition.

POINT 2
DEVIOUS DEMONSTRATIVE EVIDENCE HAS NO PLACE IN THE COURTROOM

As has been noted above, this case also presents a number of significant procedural questions that are exacerbated in high technology litigation.[7]

Mr. Buchwald, a Motorola (GM's indemnitor) employee, who introduced a "precluded" exhibit,[8] the Buchwald DX266 Demonstrative Exhibit. The "fact" witness then conducted the surprise demonstration and proffered his "opinion" as to its meaning.(TR492, 499) The Court, in making its non-infringement finding, relied upon this most persuasive demonstration as the following shows:

> "Buchwald performed a demonstration.. [u]sing an.. oscilloscope,.. From this, he concluded and I find

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[7]**The New York Times, in a recent (2/16/98) story headlined:"Justice Breyer Calls for Experts To Aid Courts in Complex Cases" quoted that: "A judge is not a scientist and a courtroom is not a..laboratory." and "..judges must aim for decisions that..reflect the scientific state of the art."**

[8]**The following is the exact wording of the Preclusion paragraph of the Pre-trial Order of April 1996 as signed by both parties on the eve of the trial:**

"**PRECLUSION**: Witnesses or exhibits not listed in accordance with the terms of this Pre-Trial Order, or supplemental pre-trial order filed at least thirty (30) days in advance of trial, shall be precluded at trial."

that the cosine phi signal is not derived from the L+R signal; rather it is transmitted in and extracted from the phase modulated component." (Opinion 6)

Also, since the instant case flatly contradicts Judge Posner's 1996 Finley v. Marathon Oil Opinion[9] there is manifestly a conflict between circuits that requires clarification.

Furthermore, the Finley logic[10] is even more compelling when applied to complex patent cases, such as the instant case, as such trials are peculiarly susceptible to "magic shows."

Fortunately, there is a simplified argument that can prove to this Court that the finding upon which the trial court decided this case was indeed erroneous.

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[9]Finley v. Marathon Oil Co., 75 F3d 1225, 1231 (7th Cir. 1996).

[10]"Physical exhibits ('demonstrative evidence') are a very powerful form of evidence, in some cases too powerful, as we learned in Julius Caesar from Antony's masterful demagogic use of Caesar's blood-stained toga and slashed body to arouse the Roman mob." After citing McCormick on Evidence and Graham's Handbook of Federal Evidence, Judge Posner continues: "'seeing is believing,' as the misleading old saw goes. The trial judge must make sure that the jury is not misled concerning the actual meaning of the object in the context of the litigation."

The basic dispute between the parties is whether or not the distortion correction is, as claim 53 requires, derived from the L+R stereo sum signal component or, as GM urged and convinced the Court, it is derived from the L-R difference component. Both sides have utilized consistent block diagrams and there is no question that there is a physical connection between the device that derives the L+R stereo sum signal and the input of the feedback circuit in the General Motors' receiver. (GM's defense is analogous to arguing with the power company that even though your air conditioner power cord is plugged into the AC power outlet that you have a new exotic theory that proves you are not stealing the power. You plug in, you pay.)

GM's actual schematic drawings that show that the L+R sum signal is physically connected to the input control circuit and that there is absolutely no connection to the circuit where the demodulated L-R stereo signal is available.

Please see Appendix E where only the output of Block 3, the L+R sum signal, is connected to the distortion correction circuit, block 9, and the L-R stereo difference signal at the right of Block 4 is not. **It is simple as that.** Anyone who has plugged in an electrical appliance to a power outlet knows that unless the wires touch the circuit nothing works. Now it is clear how clever and powerful was GM's DX266 demonstrative demonstration.

It is quite possible that one of the Supreme Court Clerks is an Electric Engineering and would be expert in reading electrical drawings. It is **respectfully requested, ("begs" is a more honest verb), that such expert opinion be sought which will prove that it is IMPOSSIBLE that GM doesn't derive its "distortion cancellation component from the stereo sum signal component."**

As a final procedural problem the Court may wish to consider the situation of a "fact" witness performing and explaining the meaning of a (surprise, unnoticed, last minute) demonstration avoiding the requirement of an "Expert Opinion Statement" which would have described the surprise demonstration. And, of course, how, even the most liberal interpretation of Rule of Evidence 702 and Daubert, would permit such "opinion" testimony.

ANOTHER REASON WHY THIS PRO SE CASE SHOULD BE HEARD

It should be clear at this point, that the petitioner most earnestly believes in his case and for the following additional reasons he believes he should be heard:

The plaintiff, a non-lawyer, but a patent agent since 1973 and one who has worked as a research and development engineer for half a century, believes that he may be in a unique position to bring to the Court a balanced view between the extremes that the Federal Circuit has brought to this all important part of the law. Since there is such a rash of Doctrine cases now pending that require this Court's re-affirmation of Hilton Davis one can hope that the Court will hear pleas from both large and small firms well represented by advocates with full legal credentials. Thus, hearing from one non-lawyer with substantial experience arguing before federal appellate tribunals, (most of them successful appearances) may be useful and provide better balance.

Finally, there is a question of justice; should this Court totally ignore the respondent's obvious ten year plan to wait out the '994 Patent's life, and maybe the 72 year old petitioner's life, and now maybe the United States Patent System's life?

CONCLUSION

The petitioner respectfully requests this Honorable Court to grant certiorari and remand this case to the Federal Circuit for reconsideration of its non-infringement finding with a suggestion to the lower court(s) that they appoint independent experts skilled in the relevant art.

Respectfully submitted,
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Dated: July 22, 1998

APPENDIX

APPENDIX A

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

97-1277

LEONARD R. KAHN,

Plaintiff-Appellant,

v.

GENERAL MOTORS CORPORATION,

Defendant-Appellee.

DECIDED: February 3, 1998

Before NEWMAN, RADER, and GAJARSA, *Circuit Judges*.

GAJARSA, *Circuit Judge*.

DECISION

Leonard R. Kahn (Kahn) appeals the judgment of the United Stated District Court for the Southern District of New York that Claims 53 and 54 of U.S. Patent No. 4,018,994 (the '994 patent) are invalid and not infringed by General Motors Corporation (GM). *See Kahn v. General Motors Corp.*, No. 88-CV-2982, 1997 WL 37581 (S.D.N.Y. Jan. 29, 1997). We affirm-in-part and reverse-in-part.

HISTORY OF THE CASE

Kahn filed an action in the United States District Court for the Southern District of New York on April 29, 1988 alleging that GM's AM stereo radio receivers infringed Claims 53 and 54 of the '994 patent. After nine years of

litigation and twelve judicial opinions,[1] including three appeals to this court,[2] it appears that this litigation may have finally reached a conclusion. The most recent installment of this case was argued before this court on November 5, 1997.

BACKGROUND[3]

A. The '994 Patent

Kahn's patent application was filed May 2, 1975. The '994 patent, entitled "Compatible AM Stereophonic Receiv-

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[1] *Kahn v. General Motors Corp.*, 77 F.3d 457, 38 USPQ2d 1063 (Fed. Cir. 1996); *Kahn v. General Motors Corp.*, 64 F.3d 675 (Fed. Cir. 1995 (table, text at 1995 WL 492970); *Kahn v. General Motors Corp.*, 889 F.2d 1078, 12 USPQ2d 1997 (Fed. Cir. 1989); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1997 WL 37581 (S.D.N.Y. Jan. 29, 1997); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1995 WL 2135, 33 USPQ2d 2011 (S.D.N.Y. Jan 3, 1995); *Kahn v. General Motors Corp.*, 865 F. Supp 210, 33 USPQ2d 1660 (S.D.N.Y 1994); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1993 WL 128014 (S.D.N.Y. Apr. 19, 1993); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1993 WL 119798 (S.D.N.Y. Apr. 13, 1993); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1992 WL 208286 (S.D.N.Y. Aug. 14, 1992); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1992 WL 28119 (S.D.N.Y. Feb. 11, 1992); *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1991 WL 243387 (S.D.N.Y. Nov. 12, 1991); *Kahn v. General Motors Corp.*, 707 F. Supp. 683 (S.D.N.Y 1989).

[2] *Kahn v. General Motors Corp.*, 77 F.3d 457, 38 USPQ2d 1063 (Fed. Cir. 1996); *Kahn v. General Motors Corp.*, 64 F.3d 675 (Fed. Cir. 1995) (table, text at 1995 WL 492970); *Kahn v. General Motors Corp.*, 889 F.2d 1078, 12 USPQ2d 1997 (Fed. Cir. 1989).

[3] In its opinion, *Kahn v. General Motors Corp.*, No. 88-CV-2982, 1997 WL 37581 (S.D.N.Y. Jan 29, 1997), the district court fully expounds on the technological and historical background surrounding the invention and accused device at issue. Provided here is that background necessary to understand the disposition of the issues on appeal.

ers'', subsequently issued on April 19, 1977.[4] The claimed invention addresses the problem of minimizing the distortion within an AM stereo receiver. The Kahn receiver is designed to receive transmissions in which the two stereo audio signals, the left (L) and right (R) signals, are transmitted by an independent single sideband system. The information is encoded by envelope or amplitude modulation of the carrier wave by the stereo sum (L+R) signal component. According to the specification of the '994 patent, the most important feature of this invention is that the receiver derives a distortion cancellation component from the L+R signal and its higher harmonics and uses it to inversely amplitude modulate the stereo difference (L-R) signal. The substantially reduces the distortion of the L-R signal caused by amplitude modulation of the carrier wave. The concept is embodied in Claims 53 and 54 of the '994 patent, which read as follows:

> 53. In a compatible AM stereo receiver of the type for receiving a carrier wave amplitude modulated with a stereo sum (L+R) signal component and phase modulated with a stereo difference (L-R) signal component, and utilizing detection means for deriving the L+R audio signal and demodulating means for deriving the L-R audio signal and means for combining the L+R and L-R signals to isolate the L and R signal outputs, the improvement comprising:
>
> *means for deriving a distortion cancellation component from the stereo sum signal component, and*
>
> means for combining said distortion cancellation component with a signal including the stereo difference signal component information to substantially reduce distortion of the stereo difference signal component.

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[4] In 1996, this court affirmed the judgment of the District Court for the Southern District of New York that Kahn was the sole owner of the '994 patent. *See Kahn v. General Motors Corp.*, 77 F.3d 457, 459 (Fed. Cir. 1996).

54. A receiver according to claim 53, wherein said means for deriving the distortion cancellation component comprises means separating a portion of the L+R audio signal, and said means for combining the separated distortion cancellation component with said signal including the stereo difference signal component information comprises means inversely amplitude modulating the modulated carrier wave with such L+R audio signal portion prior to demodulation thereof.

(emphasis added)

B. The Accused Device

Simple quadrature modulation is often used to encode and transmit a stereo signal to compatible quadrature receivers. Quadrature modulation essentially involves the transmission of two AM signals on the same channel. This allows both the "left" speaker signal and the "right" speaker signal to be transmitted together on the same channel. Before transmission, the L+R and L-R signals are phase shifted relative to one another and combined into a single signal, which is then transmitted to a receiver. The receiver is able to decode this combined signal into its components and present a stereo signal at the speakers.

The accused Compatible Quadrature Amplitude Modulated (C-QUAM) device works in a similar manner. The signal created by quadrature amplitude modulation, however, is not compatible with monophonic AM radio receivers, which cannot decode the quadrature modulated signal, but can only detect envelopes. Therefore, at the transmitter, the C-QUAM system first normalizes the signal so that it can be decoded by standard monophonic AM circuitry. To ensure that these monophonic receivers can also properly derive a monophonic signal from the stereo transmission, the C-QUAM system multiplies the L+R and L-R signals by the

cosine of the phase angle (cos(ϕ)) between the two signals to make the signal compatible with standard AM radio receivers. This adjusts the envelope of the quadrature signal to make it compatible with standard monophonic AM radio receivers, which can then interpret the signal as a monophonic signal without having to decode the C-QUAM stereo signals. The resulting L+R and L-R signals are also phase shifted relative to one another in the transmitter. The C-QUAM transmission is in effect the hypotenuse of the triangle created by the (L+R)*cos(ϕ) and (L-R)*cos(ϕ) signal vectors. Upon reception of a quadrature signal by a C-QUAM receiver, the cos(ϕ) signal is recovered by comparing the envelope to a portion of the quadrature signal. The received C-QUAM signal is then divided by cos(ϕ) to restore the L+R and L-R signals to their original form. These stereo signals can then be demodulated and sent to the speakers.

Kahn claims that the Motorola circuit used in the GM C-QUAM receivers derives a distortion cancellation component from the L+R signal and uses it to inversely modulate the L-R signal to substantially reduce the distortion in the L-R signal as claimed in Claims 53 and 54 of the '994 patent.

LITERAL INFRINGEMENT

In determining whether there has been infringement, a two step analysis is required. First, the claims must be correctly construed to determine the scope of the claims. Second, the claims must be compared to the accused device. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976, 34 USPQ2d 1321, 1326 (Fed. Cir. 1995) (in banc), *aff'd*, 116 S. Ct. 1384, 38 USPQ2d 1461 (1996); *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1581-82, 39 USPQ2d 1573, 1576 (Fed. Cir. 1996); *Hormone Research Found., Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1562, 15 USPQ2d 1039, 1042 (Fed. Cir. 1990). To establish literal

infringement, a plaintiff must demonstrate that every limitation in the claim is literally met by the accused device. *See Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 1388-89, 21 USPQ2d 1383, 1387 (Fed. Cir. 1992); *see also Key Mfg. Group, Inc. v. Microdot, Inc.*, 925 F.2d 1444, 1449, 17 USPQ2d 1806, 1810 (Fed. Cir. 1991). Demonstration that every limitation of the claim is literally met by the accused device must be shown by a preponderance of the evidence. *See Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 758, 221 USPQ 473, 477 (Fed. Cir. 1984).

A. Claim Construction

Claim construction is a matter of law and is reviewed by this court *de novo*. *Markman*, 52 F.3d at 974. Claim 53, the only independent claim at issue in this appeal, is written in means-plus-function language as permitted by 35 U.S.C. § 112, para. 6. Claims written in means-plus-function form are interpreted to cover the structure set forth in the specification and its equivalents. *See* 35 U.S.C. § 112, para. 6; *Intellicall*, 952 F.2d at 1388; *In re Iwahashi*, 888 F.2d 1370, 1375, 12 USPQ2d 1908, 1912 (Fed. Cir. 1989). The only claim limitation at issue in this appeal is the limitation in Claim 53, which requires "means for deriving a distortion cancellation component from the stereo sum signal component." The district court found that the parties had stipulated that the proper construction of the term "deriving" was "getting something from something else." *Kahn*, 1997 WL 37581, at *5. Kahn does not appeal this finding. We therefore adopt this interpretation of the term "derive".

Unlike the ordinary situation in which claims may not be limited by functions or elements disclosed in the specification, but not included in the claims themselves, in writing a claim in means-plus-function form, a party is limited to the corresponding structure disclosed in the specification and its equivalents. *See* 35 U.S.C. § 112, para. 6.

A structure disclosed in the specification is only deemed to be "corresponding structure" if the specification clearly links or associates that structure to the function recited in the claim. *See B. Braun Med., Inc. v. Abbott Lab.*, 124 F.3d 1419, 1424, 43 USPQ2d 1896, 1900 (Fed. Cir. 1997). The duty to link or associate structure in the specification with the function is the *quid pro quo* for the convenience of employing § 112, para. 6. *See O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1583, 42 USPQ2d 1777, 1782 (Fed. Cir. 1997).

There is sufficient structure disclosed in the '994 patent associated with the claim limitations. Kahn points to the structure associated with each limitation of Claim 53. Kahn claims that the limitation requiring "means for deriving a distortion cancellation component from the stereo sum signal component" is found in Figures 1, 2 and 3 and is labeled therein as parts 40, 44, 54, 54′ and 96′. Kahn also claims that this limitation is disclosed in the specification of the '994 patent at column 5, lines 1 to 13. Turning to the Figures 1, 2 and 3 of the specification of the '994 patent, the above mentioned references disclose that part 40 refers to an amplifier, part 44 refers to a summer, and part 54 refers to a frequency doubler. Parts 54′ and 96′ also refer to frequency doublers in alternative embodiments of the claimed invention. Column 5, lines 1 to 13 of the written description disclose that the output from the envelope detector (L+R) is fed into the amplifier 40 and is summed together (along with the output from the frequency doubler 54) by the summer 44. The resulting summed signal is used to inversely amplitude modulate the stereo difference signal (L-R) to reduce distortion. The specification discloses a method for feeding the L+R signal and its higher harmonics taken from the frequency doubler to an inverse modulator, which then is used to eliminate the distortion caused by the amplitude modulation of the carrier wave. Kahn claims that the feed-

back circuit used in the GM receiver is an equivalent of the above described structure. We disagree with this characterization.

B. Comparison of the Claims to the Accused Device

Literal infringement of a claim exists when every limitation recited in the claim is found in the accused device. *See Strattec Security Corp. v. General Automotive Specialty Co.*, 126 F.3d 1411, 1418, 44 USPQ2d 1030, 1036 (Fed. Cir. 1997); *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1580, 12 USPQ2d 1382, 1384 (Fed. Cir. 1989) (collecting cases). The district court found that Kahn failed to sustain his burden of proving that the GM system embodies every element of Claim 53 because he did not show that the GM circuit included "means for deriving a distortion cancellation component from the stereo sum signal component." *Kahn*, 1997 WL 37581, at *3. For the same reasons, the district court also found that the GM circuit did not infringe dependent Claim 54.

The feedback circuit used in the GM receiver consists of an envelope detector, a comparator and an inverse modulator. The comparator uses as one input the output from an envelope detector, or the L+R signal. On the other input is the output from the demodulator, which is the L+R signal plus the cos(ϕ) signal. The output from the comparator is the cos(ϕ) signal, which is connected to the inverse modulator and is used to inverse modulate the input signal to remove the cos(ϕ) signal.

Kahn also claims that part of the distortion cancellation signal in Claim 53 is an element of background noise derived from the L+R signal. This background noise is used to reduce or eliminate the background noise present in the L-R signal. Kahn claims that the accused device also uses the background noise derived from the L+R signal to reduce the distortion caused by background noise in the L-R signal.

Kahn is incorrect. To the extent that the background noise is derived from the L+R signal, the noise is eliminated by the comparator, which uses the exact same L+R signal including background noise to isolate the cos(ϕ) signal from the L+R signal. The background noise is therefore present on both inputs to the comparator, and each cancels the other from the signal, leaving the cos(ϕ) signal as the sole input to the inverse modulator.

Despite Kahn's claim that the feedback system used in the GM circuit is the feedforward equivalent of the structure disclosed in the '994 patent, there are significant differences between the two structures. The structure of the '994 patent includes a frequency doubler, which has no counterpart equivalent in the GM receiver that performs a similar function. Likewise, the summer described in the '994 specification has no counterpart in the GM circuit. It is clear that the GM feedback circuit employing a comparator is not an equivalent to the amplifier, frequency doubler, summer combination disclosed in the '994 specification. These two circuits utilize very different structures, for different purposes. As a result, we hold that there is no counterpart equivalent structure in the accused device that meets the means-plus-function limitation of Claim 53, which requires "means for deriving a distortion cancellation component from the stereo sum signal component."

The absence of even a single limitation of Claim 53 from the accused device precludes a finding of literal infringement. *See Key Mfg.*, 925 F.2d at 1449. Because a limitation contained in Claim 53 is not met by the accused device, Claim 53 is not literally infringed. Similarly, because Claim 54 contains limitations not contained in Claim 53, Claim 54 is narrower than Claim 53 and is therefore also not infringed by the accused device.

DOCTRINE OF EQUIVALENTS

Kahn also claims that the GM circuit infringes under the doctrine of equivalents. Under the doctrine of equivalents, an accused device "that does not literally infringe upon the express terms of a patent claim may nonetheless be found to infringe if there is 'equivalence' between the elements of the accused product or process and the claimed elements of the patented invention." *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 117 S. Ct. 1040, 1045, 41 USPQ2d 1865, 1868 (1997); *see also Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950); *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934, 4 USPQ2d 1737, 1739 (Fed. Cir. 1987) (in banc).

The district court found that the GM circuit was substantially different from the system claimed in Claims 53 and 54. *See Kahn*, 1997 WL 37581, at *4. We review a decision of infringement under the doctrine of equivalents by a district court for clear error. *See Pennwalt*, 833 F.2d at 936. We agree with the district court that the accused device is not an equivalent of the claimed invention and does not infringe under the doctrine of equivalents. The record before us is devoid of any evidence that would support a finding that the limitations specified in the claim that are not found exactly in the accused device are met by equivalents in the accused device. In fact, it is clear from the record that the accused device performs a substantially different function in a different way to achieve an entirely different result.

The doctrine of equivalents is applied to each individual element of a claim, not to the invention as a whole. *See Warner-Jenkinson*, 117 S. Ct. at 1049. Focusing on the individual elements of Claim 53, it is clear that the function of the limitation in Claim 53 which requires "means for deriving a distortion cancellation component from the stereo sum signal component" is to reduce distortion in the input

signal. Kahn claims that the comparator and other related components in the accused device correspond to this claim element. However, these components function not to reduce distortion in the input signal, but to remove the cos(ϕ) signal in order to recover the original L-R signal. These are not substantially equivalent functions. The "means for deriving" limitation of Claim 53 functions to reduce distortion caused by amplitude modulation, while the comparator and related components in the accused device enable the circuit to remove an unnecessary signal added merely for backwards compatibility with existing systems.

The limitation in Claim 53 requiring "means for deriving a distortion cancellation component from the stereo sum signal component" also uses a significantly different structure to accomplish its function. As stated above, the amplifier, frequency doubler, summer combination which define the "means for deriving" are significantly different from the feedback structure of the accused device, which employs a comparator. The way these elements accomplish their respective functions cannot be said to be substantially the same.

Finally, the result is substantially different. The result of the structure defined by the "means for deriving" limitation in Claim 53 is the reduction of distortion in the input signal. The result of the allegedly equivalent structure in the accused GM circuit is merely the elimination of the cos(ϕ) component of the input signal. The L+R signal plays no part in the inverse modulation of the L-R signal as it is completely eliminated by the comparator, which outputs only the cos(ϕ) signal.

For the foregoing reasons, the above described structure of the GM circuit cannot be considered an equivalent to that disclosed in the specification of the '994 patent corresponding to the limitation in Claim 53 requiring "means for deriv-

ing." As a result, there can be no infringement under the doctrine of equivalents.

PATENT VALIDITY

The district court found Claims 53 and 54 of the '994 patent invalid under 35 U.S.C. § 103 (1994) as obvious over U.S. Patent No. 2,420,230 issued to Crosby on May 6, 1947, (the Crosby patent) and U.S. Patent No. 3,080,453 issued to Avins on March 5, 1963, (the Avins patent). *See Kahn*, 1997 WL 37581, at *7. The Avins patent, but not the Crosby patent, was before the examiner during the prosecution of the '994 patent. The district court based its finding in large part upon the expert testimony proffered by GM. Because the Avins patent combined with the Crosby patent would not have made using the envelope signal with the addition of higher harmonics of the envelope signal obvious to one of ordinary skill in the art, we reverse the decision of the district court.

A. Standard of Review

When a district court holds a patent invalid for obviousness, we review the ultimate legal conclusion as a matter of law *de novo*. *See Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1182, 20 USPQ2d 1094, 1102 (Fed. Cir. 1991). However, re review the underlying factual findings such as differences between the prior art and the claimed invention, the level of ordinary skill in the art, and objective evidence of secondary considerations of patentability for clear error. *See id.* "A finding is 'clearly erroneous' when although there is evidence to support it, the reviewing court on the entire evidence is left with the definite and firm conviction that a mistake has been committed." *United States v. United States Gypsum Co.*, 333 U.S. 364, 395 (1948).

B. Prior Art

GM argued, and the district court found, that Claims 53 and 54 were invalid because they would have been obvious in light of the Avins and Crosby references. *See Kahn*, 1997 WL 37581, at *6. The record clearly supports the district court's finding that Kahn admitted in his deposition that each element in the preamble of Claim 53 could be found within the Avins patent. We turn now to the teachings of the Crosby patent, which was issued almost thirty years before the '994 patent issued.

The Crosby patent teaches the use of a distortion correction signal derived from the envelope signal to inversely modulate the phase modulated component of the input signal in order to eliminate some of the distortion that inevitably occurs as the signal is recovered from the envelope. The Crosby patent is essentially directed towards a process for reducing the distortion caused to an FM signal by an AM envelope. The specification of the Crosby patent discloses that, by using inverse modulation, the limiter often used to eliminate the AM envelope can be dispensed with because the elimination of amplitude modulation by the balanced detector is made more complete. Essentially, the Crosby system modulates the envelope in inverse proportion to the envelope amplitude. In so doing, the Crosby system reduces the amplitude of the envelope when it is at a high point and amplifies the amplitude of the envelope when it is at a low point. The Crosby patent states that "[t]he inverse modulation . . . opposes the undesired amplitude modulation which is present, and tends to cancel it." (Crosby, col 2, ll. 29-32). As a result, the envelope is more completely eliminated without the need to use a limiter. The Crosby patent teaches that a better alternative to using a limiter to eliminate the L+R envelope is to inversely modulate the envelope using the envelope signal itself.

C. Discussion

Under 35 U.S.C. § 103, "[a] patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The determination under section 103 is whether the claimed invention as a whole would have been obvious to a person of ordinary skill in the art at the time the invention was made. *See in re O'Farrell*, 853 F.2d 894, 902, 7 USPQ2d 1673, 1680 (Fed. Cir. 1988). Obviousness may not be established using hindsight. *See W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1551, 220 USPQ 303, 312-13 (Fed. Cir. 1983). In determining obviousness, the invention must be considered as a whole and the claims must be considered in their entirety. *See Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1567, 220 USPQ 97, 101 (Fed. Cir. 1983). An issued patent is presumed to be valid and, hence, nonobvious. *See* 35 U.S.C. § 282 (1994). Thus, in this case, it is GM's burden to prove by clear and convincing evidence that the claimed invention would have been obvious in view of the prior art. *See Glaverbel Societe Anonyme v. Northlake Mktg. & Supply, Inc.*, 45 F.3d 1550, 1555, 33 USPQ2d 1496, 1499 (Fed. Cir. 1995); *see also Polaroid Corp. v. Eastman Kodak Co.* 789 F.2d 1556, 1558, 229 USPQ 561, 562-63 (Fed. Cir. 1986). The presentation of evidence that was not before the examiner does not change the presumption of validity, although the burden may be more or less easily carried because of the additional evidence. *See Applied Materials, Inc. v. Advanced Semiconductor Materials Am., Inc.*, 98 F.3d 1563, 1569, 40 USPQ2d 1481, 1485 (Fed. Cir. 1996).

Kahn agreed in his deposition that the Avins patent teaches every limitation of Claim 53 except the limitation that

requires "means for deriving a distortion cancellation component from the stereo sum signal component." As we noted above, Claim 53 is written in means-plus-function form pursuant to 35 U.S.C. § 112, para. 6. Means-plus-function claims are limited to the structure disclosed in the specification and "equivalents thereof." 35 U.S.C. § 112, para. 6. The specification of the '994 patent clearly discloses a structure that isolates the L+R envelope signal and uses the envelope signal to inversely modulate the L-R signal to reduce distortion. This is clearly disclosed by the Crosby patent. However, as we discussed above, the structure shown in the specification of the '994 patent also discloses a frequency doubler and a summer, which are used to add higher harmonics to the original envelope signal. The claim is limited to this structure as well. Indeed, one of the bases for the finding of noninfringement of the accused device was the limitation of the claim to a structure for including higher harmonics of the L+R signal in the distortion cancellation component. "It is insufficient to establish obviousness that the separate elements of the invention existed in the prior art, absent some teaching or suggestion, in the prior art, to combine the elements." *Arkie Lures, Inc. v. Gene Larew Tackle, Inc.*, 119 F.3d 953, 957, 43 USPQ2d 1294, 1297 (Fed. Cir. 1997). The district court erred in failing to limit Claim 53 to the structure in the '994 specification for adding higher frequency components to the distortion cancellation signal. Such a limitation precludes a finding of obviousness based on the combination of the Avins and Crosby patents.

Crosby clearly discloses the use of the envelope signal to eliminate distortion in the L-R signal. This limitation is not present or suggested by either the Avins patent or the Crosby patent. There is nothing in the prior art that discloses that the use of higher harmonics to reduce distortion would be desired or even useful to reduce the distortion in the L-R signal.

As discussed above, the Crosby invention used only the L+R envelope signal to eliminate the effects of amplitude modulation by the transmitter. The purpose of inverse modulation in the Crosby patent is to cancel the L+R envelope as completely as possible. There is nothing in the Crosby patent to suggest to one of ordinary skill in the art that doubling the frequency of the envelope and adding it to the distortion cancellation component would improve the noise characteristics of the resulting signal. Hence, it would not have been obvious to one of ordinary skill in the art to add higher harmonics to the Avins-Crosby combination to achieve the result of Claim 53.

GM has not proven by clear and convincing evidence that the invention defined by Claim 53 would have been obvious to one of ordinary skill in the art. As a result, we find that the district court erred in finding that the claimed invention would have been obvious over the combination of Avins and Crosby. Similarly, because Claim 54 depends from Claim 53, the invention defined by Claim 54 also would not have been obvious in light of the prior art. Accordingly, the judgment of the district court with respect to the validity of Claims 53 and 54 of the '994 patent is reversed.

CONCLUSION

We hold that the accused device does not literally infringe either Claim 53 or 54 because the accused device does not contain an exact or equivalent structure to that disclosed in the specification of the '994 patent. The functions and structure of each circuit are so different that there is no equivalency under the doctrine of equivalents. We also hold that the invention of Claims 53 and 54 of the '994 patent would not have been obvious based on the combination of the Avins and Crosby patents because the combination of Avins and Crosby would not have taught one of ordinary skill in the art to utilize a structure for adding higher har-

monics to the distortion cancellation signal. The judgment of the district court is affirmed with respect to its finding of noninfringement and reversed with respect to its finding that the invention of Claims 53 and 54 would have been obvious based on the prior art.

AFFIRMED-IN-PART and REVERSED-IN-PART

APPENDIX B

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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88 Civ. 2982 (HB)

LEONARD R. KAHN,

Plaintiff,

-against-

GENERAL MOTORS CORPORATION,

Defendant.

Appearances:

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DECISION AND ORDER

HAROLD BAER, JR., District Judge:

Plaintiff Leonard R. Kahn brought this action alleging that defendant General Motors Corporation ("GM") infringed claims 53 and 54 of U.S. Patent No. 4,018,994 (the " '994 patent") and committed various state law torts. GM counterclaimed for a declaratory judgment that claims 53 and 54 of the '994 patent are invalid. Prior to trial, Kahn withdrew all of his tort claims with prejudice. A nonjury trial was held in April 1996. This Decision and Order constitutes the Court's findings of fact and conclusions of law. Fed. R. Civ. P. 52(a). For the reasons that follow, I find that Kahn failed to prove the GM receivers infringed the '994 patent and that GM proved that claims 53 and 54 of the '994 patent are invalid. Accordingly, the complaint is dismissed and claims 53 and 54 are declared invalid.

Background

The '994 patent, entitled "Compatible AM Stereophonic Receivers," issued to Kahn on April 19, 1977 from an application filed on May 2, 1975. The claimed invention addresses the problem of optimizing the quality of the output signal from a compatible AM stereo receiver. The term compatible refers to the radio transmission and means that the signal can be received by both monophonic and stereophonic receivers. A compatible AM stereo receiver is capable of receiving such radio transmissions.

The Kahn receiver is designed to receive transmissions where the two stereo audio signals, the left ("L") and right ("R") signals, are transmitted by an independent single sideband system. In such a system, the monophonic information is encoded by envelope or amplitude modulation of the carrier wave by the stereo sum ("L+R") component. The stereophonic information is encoded by phase modula-

tion of the carrier wave by the stereo difference ("L-R") component. The claimed inventive concept is that Kahn derives a distortion cancellation component from the L+R signal and uses it to inversely amplitude modulate the L-R signal and thereby substantially reduce the distortion of the L-R signal caused by incorrect amplitude modulation of the carrier wave.

Claims 53 and 54 of the '994 patent read:

> 53. In a compatible AM stereo receiver of the type for receiving a carrier wave amplitude modulated with a stereo sum (L+R) signal component and phase modulated with a stereo difference (L-R) signal component, and utilizing detection means for deriving the L+R audio signal and demodulating means for deriving the L-R audio signal and means for combining the L+R and L-R signals to isolate the L and R signal outputs, the improvement comprising:
>
> > means for deriving a distortion cancellation component from the stereo sum signal component, and
> >
> > means for combining said distortion cancellation component with a signal including the stereo difference signal component information to substantially reduce distortion of the stereo difference signal component.
>
> 54. A receiver according to claim 53, wherein said means for deriving the distortion cancellation component comprises means separating a portion of the L+R audio signal, and said means for combining the separated distortion cancellation component with said signal including the stereo difference signal component information comprises means inversely amplitude modulating the modulated carrier wave with such L+R audio signal portion prior to demodulation thereof.

The GM receivers utilize a Delco DM 235AM circuit that was developed by Motorola, Inc. as the Motorola MC 13020P AM Stereo Decoder circuit. This circuit is designed to receive a compatible quadrature modulated signal ("C-QUAM"). At the transmitter, the C-QUAM system first creates a quadrature modulated signal in which a carrier wave is amplitude modulated with the mono audio (L+R) signal and then phase modulated with the stereo audio (L-R) signal. The stereo and mono signal are encoded ninety degrees apart. Thus, the transmission is in effect the hypotenuse of the triangle created by the mono and stereo signal vectors.

This hypotenuse created by the quadrature modulation, however, is an incompatible signal. Therefore, Motorola utilized the cosine of the phase angle to make the signal compatible. The quadrature signal is multiplied by the cosine of the phase angle (cosine phi), which reduces its size and makes it compatible. At the receiver, cosine phi is recovered. The received signal is divided by cosine phi to restore it to its original form, and it is then demodulated. *See* Tr. at 464-70; DX 267. Kahn claims that the Motorola system used in GM receivers derives a distortion cancellation component from the L+R envelope fundamental and its harmonics that is used to inversely modulate the L-R signal and thereby substantially reduce distortion in accordance with the teaching of the '994 patent.

Discussion

I. Infringement

To establish infringement, a plaintiff must demonstrate that every limitation in the claim is met by the accused device either literally or by a substantial equivalent. *Intellicall, Inc. v. Phonometric, Inc.*, 952 F.2d 1384, 1389 (Fed. Cir. 1992); *Builders Concrete, Inc. v. Bremerton Concrete*

Products, Co., 757 F.2d 255, 257 (Fed. Cir. 1985). Infringement must be shown by a preponderance of the evidence. *Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 758 (Fed. Cir. 1984).

In determining if there has been infringement, I must apply a two step analysis. First, I must determine the meaning and scope of the patent claims at issue. Second, I must compare the properly construed claims to the accused device. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff'd*, 116 S. Ct. 1384 (1996).

Claim 53 is stated in means-plus-function language as provided for in 35 U.S.C. § 112, ¶ 6. Under § 112, "[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6. The Federal Circuit has held that "to satisfy a means-plus-function limitation literally, the accused device must perform the identical function required by the limitation and must incorporate the structure disclosed in the specification, or its substantial structural equivalent, as the means for performing that function." *Intellicall*, 952 F.2d at 1388-89; *see also Valmont Industries, Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1042 (Fed. Cir. 1993).

GM argues that the Delco circuit does not satisfy several of the elements in claim 53. As I find that the GM system does not include a "means for deriving a distortion cancellation component from the stereo signal component," I need not address the additional challenged limitations. Based on this factual finding, I conclude as a matter of law that Kahn failed to sustain his burden of proving that the

GM system embodies every element of claim 53. In addition, because claim 54 is dependent on claim 53, I conclude that Kahn has failed to prove infringement of that claim as well. *See Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n.9 (Fed. Cir. 1989) ("One who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim.").

First, I must interpret this claim limitation. "The terms in a claim are given their ordinary meaning to one of skill in the art unless it appears from the patent and file history that the terms were used differently by the inventor." *Intellicall*, 952 F.2d at 1387. Kahn defined "deriving" as "getting something from something else," Tr. at 238, and GM adopted this definition in its proposed conclusions of law. Accordingly, I adopt it as the stipulated construction.

Kahn stated at his deposition that, in general, distortion can be described as "unwanted changes of the wave form." Kahn Dep. Apr. 25, 1991, at 30. It is caused by incorrect envelope modulation. Tr. at 318. This error in the envelope modulation and waveshape, Kahn explained, causes distortion of the L-R audio signal that must be corrected. Tr. at 358. Kahn's claimed invention derives a component from the L+R signal that is used to cancel or correct the unwanted distortion of the L-R audio signal. Tr. at 240-41; 358. I adopt this reading of the claim limitation.

Kahn contends that GM derives a distortion cancellation component from the L+R audio component. Tr. at 283-90. He stated that a person of ordinary skill in the art would have a bachelor's degree in electrical engineering with five years of design experience. Tr. at 289, and that such a hypothetical person would find the feedback system used in the GM circuit to be equivalent to the structure disclosed in his '994 patent. Tr. at 286-89.

Kahn's claim fails because he did not prove that GM's circuit derives a distortion cancellation component from the L+R audio signal. Klein testified that the cosine phi signal is transmitted in the phase modulation component. Tr. at 470. In addition, Gregory J. Buchwald performed a demonstration showing the source of the cosine phi signal. Using an oscilloscope, he measured the L+R envelope modulation from the transmitter and the cosine phi signal at the receiver. After he cut off the envelope modulation signal at the transmitter, the cosine phi signal remained unchanged. From this, he concluded and I find that the cosine phi signal is not derived from the L+R signal; rather it is transmitted in and extracted from the phase modulated component. Tr. at 490-92, 496-99; DX 266.

Further, the structure used to obtain the cosine phi signal in the GM receiver is not the same or equivalent to the Kahn system. GM utilizes a comparator, which Kahn characterizes as a feedback system. A comparator is a device whose output is the difference between its two inputs. Tr. at 525; Kahn Apr. 25, 1991 Dep. at 144-45. In the GM circuit, the comparator measures the difference between the output of the envelope detector, which is the L+R signal, and the I, or in-phase, detector, which is the L+R signal plus the cosine phi signal. Tr. at 525-26; Kahn Dep. Apr. 25, 1991, at 144-45. The output of the comparator is cosine phi. Tr. at 526; Kahn Dep. Apr. 25, 1991, at 145.

At his deposition, Kahn testified that the comparator does not take anything from the output of the envelope detector. Rather, the envelope detector output is used only as a reference signal. Kahn Dep. April 25, 1991, at 158-59. Klein also testified that the comparator does not derive anything from the output of the envelope detector. Tr. at 526-27. Finally, Klein stated that the GM comparator circuit is not structurally equivalent to the summation circuit disclosed in the '994 patent. Tr. at 477.

I find the testimony of Klein and Buchwald and the Buchwald demonstration credible and persuasive and reject Kahn's contrary testimony. Accordingly, I find that the system does not derive a distortion cancellation component from the stereo sum signal and the GM circuit does not contain the structural equivalent of the circuitry disclosed in the '994 patent. Under the *Intellicall* standard, 952 F.2d at 1388-89, I conclude that Kahn has not proved literal infringement.

This finding also precludes Kahn's claim of infringement under the doctrine of equivalents. "Under the doctrine of equivalents, an accused product that differs from the claim, and thus does not literally infringe, nonetheless infringes if its difference from that claim is insubstantial from the perspective of one of ordinary skill in the art." *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996); *see also Hilton Davis Chem. co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1518 (Fed. Cir.), *cert. granted*, 116 S. Ct. 1014 (1996). However, the doctrine does not extend or enlarge the scope of patent claims and it cannot be used to ignore claim limitations. *Dolly, Inc. v. Spalding & Evenflo Co.*, 16 F.3d 394, 398 (Fed. Cir. 1994); *see also Athletic Alternatives*, 73 F.3d at 1582-83.

Kahn's claim under the doctrine of equivalents, however, fails because I have found that the GM circuit does not derive a distortion cancellation component from the L+R signal within the limitation of claim 53. The absence of this functional claim limitation, precludes a finding of infringement. *Dolly*, 15 F.3d at 398; *Valmont Industries*, 983 F.2d at 1455 n.2. I find that the GM receiver is substantially different from the system disclosed in the '994 patent, and accordingly I conclude that it does not infringe under the doctrine of equivalents.

II. Patent Validity

GM also seeks a declaratory judgment that claims 53 and 54 of the '994 patent are invalid. It argues that these claims are anticipated under 35 U.S.C. § 102, obvious under 35 U.S.C. § 103, and the specifications fail to satisfy the enablement requirement of 35 U.S.C. § 112.

The '994 patent, like all patents, is presumed valid. This presumption can only be overcome by clear and convincing evidence. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve*, 796 F.2d 443, 446 (Fed. Cir. 1986), *cert. denied*, 484 U.S. 823 (1987); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1459 (Fed. Cir. 1984).

A. Anticipation

Anticipation is one way to prove invalidity. The concept emerges from 35 U.S.C. § 102 where we read that a patent is invalid if "the invention was patented . . . in this or a foreign country . . . more than one year prior to the date of the application for patent in the United States." Anticipation requires the presence of every element in the claimed invention in a single prior art reference. *Lewmar Marine, Inc. v. Barient, Inc.*, 827 F.2d 744, 747 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 1007 (1988); *American Hoist*, 730 F.2d at 1452. "That which would literally infringe if later in time anticipates if earlier than the date of the invention." *Lewmar Marine*, 827 F.2d at 747. "In deciding the issue of anticipation, the trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference." *American Hoist*, 730 F.2d at 1458.

GM argues that claims 53 and 54 are anticipated by U.S. Patent No. 2,420,230 issued to Crosby on May 6, 1947 and

U.S. Patent No. 3,143,600 issued to De Vries on August 4, 1964. Klein gave extensive testimony that each element of claims 53 and 54 were found in both of these patents. Much of this testimony was endorsed by Jon Grosjean. Although I found this testimony persuasive and credible, I reject GM's anticipation claim.

Klein's conclusions as to anticipation were tied, properly, to the construction of the '994 patent. He testified that the '994 patent was anticipated if it was construed broadly enough to cover the GM receiver. *See* Tr. at 555, 607. However, he did not state that the '994 patent would be invalid if it received a narrower interpretation, such as I have given it here. Indeed, he testified that if the patent examiner had been aware of the Crosby patent, claims 53 and 54 might still have been allowed if they were given a narrow interpretation. Tr. at 542.

I find on this record that neither the Crosby nor the De Vries patents embody every element of claims 53 and 54 of the '994 patent. Accordingly, I conclude that GM has failed to prove by clear and convincing evidence that these claims are invalid under § 102.

B. Obviousness

The obviousness concept has its roots in 35 U.S.C. § 103, where we read that a patent is invalid if the claimed invention "would have been obvious to a person having ordinary skill in the art." In determining whether an invention was obvious, the Court must examine (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) objective evidence of secondary considerations. *Graham v. John Deer Co.*, 383 U.S. 1, 17-18 (1966); *Bausch & Lomb*, 796 F.2d at 447. The determination of obviousness must be made with reference to the hypothetical

person of ordinary skill in the art. *Id.* at 448. "When the references are all in the same or analogous fields, knowledge thereof by the hypothetical person of ordinary skill is presumed, and the test is whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention." *In re Gorman*, 933 F.2d 982, 986 (Fed. Cir. 1991) (citation omitted).

1. The Scope and Content of the Prior Art

" 'The scope and content of the prior art has been defined as that reasonably pertinent to the particular problem with which the inventor was involved.' " *American Hoist*, 730 F.2d at 1460 (quoting *Stratoflex Inv. v. Aeroquip Corp.*, 713 F.2d 1530, 1535 (Fed. Cir. 1983)); *see also Bausch & Lomb*, 796 F.2d at 449. The problem facing Kahn was the design of a compatible AM stereo receiver that reduced distortion and thereby optimized output signal quality. I find that the relevant prior art includes the references cited in the '994 patent as well as other patents in the field of AM stereo receivers, including U.S. Patent No. 3,080,453 issued to Avins on March 5, 1963. D.X. 4. In addition, although it did not disclose a stereo receiver, I find that U.S. Patent No. 2,420,230 issued to Crosby on May 6, 1947 is pertinent because it discloses a receiver for carrier waves that have been both phase and amplitude modulated and a circuit designed to reduce distortion. D.X. 1; *see* Tr. at 545. Both the Crosby and Avins patents issued prior to Kahn's application which was filed on May 2, 1975.

2. The Differences Between the Claimed Invention and the Prior Art

In determining the differences between the claimed invention and the prior art, the Court must consider the claimed invention as a whole. *Bausch & Lomb*, 796 F.2d at 449; *American Hoist*, 730 F.2d at 1462. Where various elements

from more than one reference must be combined to form the claimed invention, "the question is whether there is something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." *Id.; see also Gorman*, 933 F.2d at 986. "The problem confronted by the inventor must be considered in determining whether it would have been obvious to combine references in order to solve that problem." *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 679 (Fed. Cir. 1988). Finally, " '[t]he invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.' " *Id.* (quoting *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1143 (Fed. Cir. 1985)).

Kahn testified at his deposition that each element in the preamble of claim 53 is found in the prior art, and more specifically, in the Avins '453 patent. Kahn Apr. 25, 1991 Dep. at 57; Kahn Apr. 26, 1991 Dep. at 248-51. At trial Klein testified that the '453 patent teaches the use of a dynamic limiter in an AM stereo receiver to reduce distortion of the L-R signal. Tr. at 546; D.X. 4. Crosby, on the other hand, teaches the use of a distortion correction signal derived from the envelope to inversely modulate the phase modulated component. Tr. at 538-41; D.X. 1. Klein stated that the Crosby patent is a substitute for a limiter. Tr. at 547, 604. Although Kahn disagreed, believing that Crosby really functions as a limiter, Klein's testimony is bolstered by the Crosby patent itself. D.X. 1 at col. 1, ll. 33-34 ("Hence, if desired, the limiter may be dispensed with . . . .").

Klein stated his opinion that it would have been obvious to a person skilled in the art to substitute the Crosby inverse modulator for the dynamic limiter in the Avins circuit. Tr. at 547. As he explained, this substitution would form the same circuit as that claimed in claims 53 and 54 of the '994 patent. Tr. at 549-50. Further, Klein opined that a person

skilled in the art and following the teachings of the Avins patent who encountered the "click and pop" problem that Kahn claims all limiters create, would have found it obvious to look to the Crosby patent for a limiter substitute. Tr. at 548-50.

I found Klein's testimony credible and persuasive. Although Klein testified that the Kahn system "was a unique and, in my view, very patentable invention," Tr. at 608, as GM's counsel argued and I recognized, this statement was directed at the overall system rather than the particular elements in claims 53 and 54. Based on Klein's testimony, the relevant exhibits, and to a more limited extent the credible testimony of Jon Grosjean, I conclude that the elements claimed in claims 53 and 54 of the '994 patent are readily formed by the combination of the Crosby and Avins patents. Further, the Crosby patent would have suggested to a person of ordinary skill in the art that inverse modulation using the envelope signal could be used instead of a limiter to reduce distortion of the phase modulated component of an AM stereo signal. *Cf. Gorman*, 933 F.2d at 986-87 ("The extent to which such suggestion must be explicit in, or may be fairly inferred from, the references, is decided on the facts of each case, in light of the prior art and its relationship to the applicant's invention.").

3. Level of Ordinary Skill in the Art

Kahn testified that a person of ordinary skill in the art would have a bachelor's degree in electrical engineering and five years of design experience. Tr. at 289. GM adopted this in its proposed findings. Accordingly, I find that this is the stipulated level of ordinary skill in the art.

4. Objective Evidence of Secondary Considerations

Evidence of secondary considerations that may indicate nonobviousness must always be considered. *Bausch &*

Lomb, 796 F.2d at 450. Such evidence includes commercial success, long felt but unresolved needs, failed attempts and copying. *Id.; Cable Elec. Prods. Inc. v. Genmark, Inc.*, 770 F.2d 1015, 1026-28 (Fed. Cir. 1985). However, before the Court may give substantial weight to the secondary considerations in determining obviousness, the patentee must establish a nexus between the claimed invention and the secondary considerations. *Id.* at 1026.

Here, Kahn introduced scant evidence of secondary considerations. He testified that he never found a patent that did not click and pop and did not infringe his patent. Further, he claimed that there was no AM stereo receiver in mass production that did not use his invention. Tr. at 252-54. This supports the proposition that his invention was commercially successful. However, in light of my finding that GM's receiver did not infringe upon the '994 patent, I do not find this testimony credible.

Based on the findings outlined above under the *Graham* analysis, I conclude that GM proved by clear and convincing evidence that a person of ordinary skill in the art at the time that Kahn developed his claimed invention would have found the disclosures in claims 53 and 54 of the '994 patent obvious. Accordingly, these claims are invalid under § 103.

C. Enablement

The first paragraph of 35 U.S.C. § 112 provides:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms at to enable any person skilled in the art to which it pertains . . . to make and use the same . . . .

This provision requires that the specification "enable one skilled in the particular art to use the invention without undue experimentation." *In re Goodman,* 11 F.3d 1046,

1050 (Fed. Cir. 1993). While some experimentation is acceptable, undue experimentation is not. *PPG Indus., Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1564 (Fed. Cir. 1996); *In re Wands,* 858 F.2d 731, 736-37 (Fed. Cir. 1988). "The key word is 'undue,' not 'experimentation.'" *Id.* (citation omitted).

GM contends that claims 53 and 54 are invalid because they do not enable a person of ordinary skill in the art to build the inverse modulator represented by box 28 in Fig. 1 of the '994 patent. Although Kahn admitted that some trial and error would be required to practice his invention, Tr. at 320, I find that GM did not prove by clear and convincing evidence that undue experimentation would be required. Accordingly, I conclude that claims 53 and 54 of the '994 patent are not invalid under § 112, ¶ 1.

III. Conclusion

For the reasons stated above, I find that plaintiff failed to prove infringement by a preponderance of the evidence and defendant proved that the '994 patent is invalid as obvious by clear and convincing evidence. Based on these findings, I need not reach defendant's argument that plaintiff's claim is barred by estoppel and laches. Finally, I conclude that this is not an exceptional case under 35 U.S.C. § 285. Defendant's request for attorneys' fees is denied.

The Clerk of the Court is directed to enter judgment for the defendant dismissing the complaint and finding U.S. Patent No. 4,018,994 invalid.

SO ORDERED

Dated: New York, New York
January 27, 1997

/s/ Harold Baer, Jr.
U.S.D.J.

APPENDIX C

UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

ORDER

A combined petition for rehearing and suggestion for rehearing in banc having been filed by the APPELLANT, and the petition for rehearing having been referred to the panel that heard the appeal, and thereafter the suggestion for rehearing in banc having been referred to the circuit judges who are in regular active service,

UPON CONSIDERATION THEREOF, it is

ORDERED that the petition for rehearing be, and the same hereby is, DENIED and it is further

ORDERED that the suggestion for rehearing in banc be, and the same hereby is, DECLINED.

The mandate of the court will issue on April 2, 1998.

FOR THE COURT,
JAN HORBALY, CLERK

Dated: March 26, 1998

By /s/ Alex Van Veen AMT
Alex Van Veen
Staff Law Clerk

cc: LEONARD R. KAHN
ROBERT F. KRUPKA

KAHN V GENERAL MOTORS CORPORATION, 97-1277
(DCT - 88-CV-2982)

Note: Pursuant to Fed. Cir. R. 47.6, this order is not citable as precedent. It is a public record.

APPENDIX D

SUPREME COURT OF THE UNITED STATES
OFFICE OF THE CLERK
WASHINGTON, DC 20543-0001

WILLIAM K. SUTER
CLERK OF THE COURT

AREA CODE 202
479-3011

June 12, 1998

Leonard R. Kahn
320 East 42nd Street
Mezzanine West
New York, NY 10017

Re: Leonard R. Kahn
v. General Motors Corporation
Application No. A-941

Dear Mr. Kahn:

The application for an extension of time within which to file a petition for a writ of certiorari in the above-entitled case has been presented to the Chief Justice, who on June 12, 1998, extended the time to and including July 23, 1998.

This letter has been sent to those designated on the attached notification list.

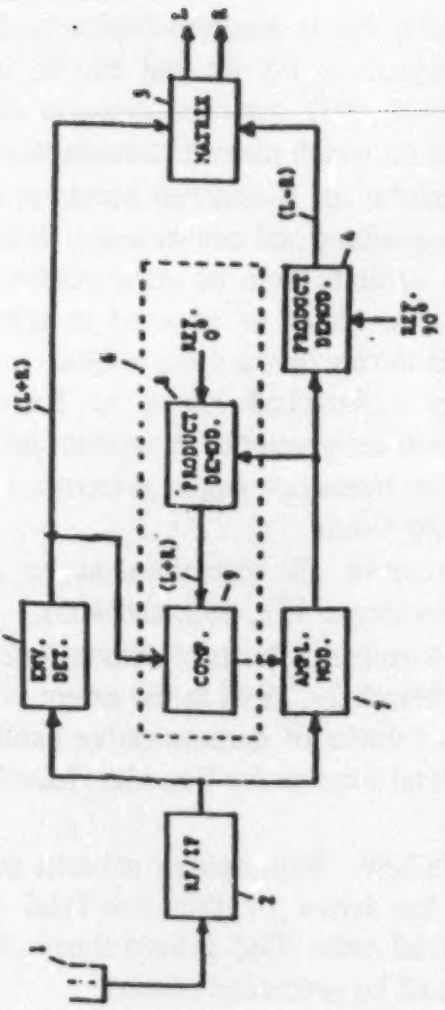
Sincerely,

WILLIAM K. SUTER, Clerk

By

Gail B. Johnson
Assistant Clerk

APPENDIX E



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APPENDIX F

Pre-Trial Order Exhibit

* * * *

14. ***EXHIBITS:***

Plaintiff's exhibit list is attached hereto as Exhibit C. General Motors objects to PX 40 and PX 41 on hearsay grounds. (Fed.R.Evid. 802). Attached hereto as Exhibit D is a list of depositions on which plaintiff intends to rely.

Defendant's exhibit list is attached hereto as Exhibit E. In the interests of expedition and convenience, defendant lists in Exhibit E those exhibits from its prior exhibit list that it presently believes are likely to be used at trial, without prejudice to its right to rely on the other exhibits it previously listed if necessary. Attached hereto as Exhibit F are defendant's deposition designations. A separate book of these designations ans the transcript pages referenced therein is being provided to the Court.

The parties reserve all objections as to relevancy. (Federal Rules of Evidence 401, 402, and 403).

The parties will exchange drafts of demonstrative exhibits via fax on Friday, March 29, 1996 to the extent possible and send hard copies of drafts of demonstrative exhibits to the other party via Federal Express for Saturday, March 30, 1996 delivery.

15. ***PRECLUSION:*** Witnesses or exhibits not listed in accordance with the terms of this Pre-Trial Order, or supplemental pre-trial order filed at least thirty (30) days in advance of trial, shall be precluded at trial.

16. ***TRIAL COUNSEL:*** Counsel who will try the case of the respective parties are:

For Plaintiff:

Leonard R. Kahn, pro se

* * * *